

CLAIMS:

1. A hydrogen activating apparatus characterized by a structure that pulse electric power is applied between at
5 least a pair of electrodes comprising a semiconductor or a semiconductor compound and being arranged to be submerged in water or a liquid of hydrogen-containing organic compound to activate hydrogen atoms contained in the water or the hydrogen-containing organic compound to
10 produce hydrogen gas.
2. The hydrogen activating apparatus as claimed in claim 1, characterized in that the semiconductor or the semiconductor compound forming the electrodes,
15 comprises at least one kind of element out of silicon, germanium, gallium, phosphorus, arsenic, cadmium, sulfur, and selenium.
3. The hydrogen activating apparatus as claimed in claim
20 1, characterized in that shapes of the electrodes are plates or sleeves.
4. The hydrogen activating apparatus as claimed in any of claim 1 to 3, characterized by the structure enabling that
25 the hydrogen activating apparatus is stopped after applying the pulse electric power between the electrodes for a predetermined time interval, an electrode material of the positive electrode and an electrode material of the negative electrodes, which construct the electrodes, are
30 exchanged with each other, and then, the pulse electric power is applied again.